Small Business Innovation Research/Small Business Tech Transfer

Small UAS Demand Estimation, Phase I

Completed Technology Project (2018 - 2019)

Project Introduction

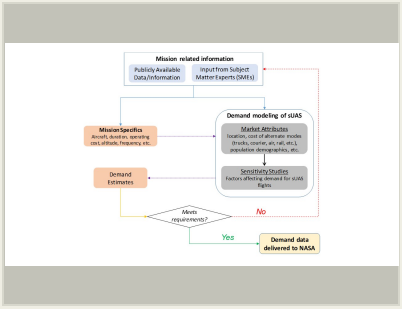
Under the UAS Traffic Management (UTM) program NASA plans to investigate procedures that can make sUAS operations for all stakeholders. Safety and operations studies under UTM will require accurate trajectories for sUAS. Currently, only a few sUAS flights are being operated under permission from the FAA. Consequently, there is a lack of large datasets of sUAS flights and trajectories available to conduct high fidelity simulations and analyses, which provide import insights into various aspects of UAS operations: regulations, safety and security enabling technologies, business models, risk analyses, and so on. To this end, we propose to develop technology that will generate credible future demand for small unmanned aircraft systems (sUAS) missions. The technology will consist of three parts: 1) a socioeconomic demand modeling system that translates inchoate mission profile information into overall demand for sUAS, 2) translation of the overall demand into specific flight data sets, specifying the origin, destination, scheduled departure and arrival times, as well as the type of aircraft flown along the route, and 3) a data warehouse system that will store the flight data sets and allow analysts to retrieve them to support custom sUAS studies

Anticipated Benefits

The proposed demand datasets have a wide variety of application for NASA

- Conduct safety analyses of sUAS operations as part of UTM project
- Incorporate our data into a modeling and simulation platform of choice
- Investigate the safety and efficiency impacts of policy changes on sUAS operations
- Test and validate Minimum Operational Performance Standards (MOPS) for sUAS

We envision our data to be used by private research organizations; by UAS manufacturers as a basis of their own business cases for building sUAS. We also expect the insurance industry to be a customer for this product. Insurance companies are expected to pay close attention to the risk to life and property that goes along with sUAS flights and tailor their prices



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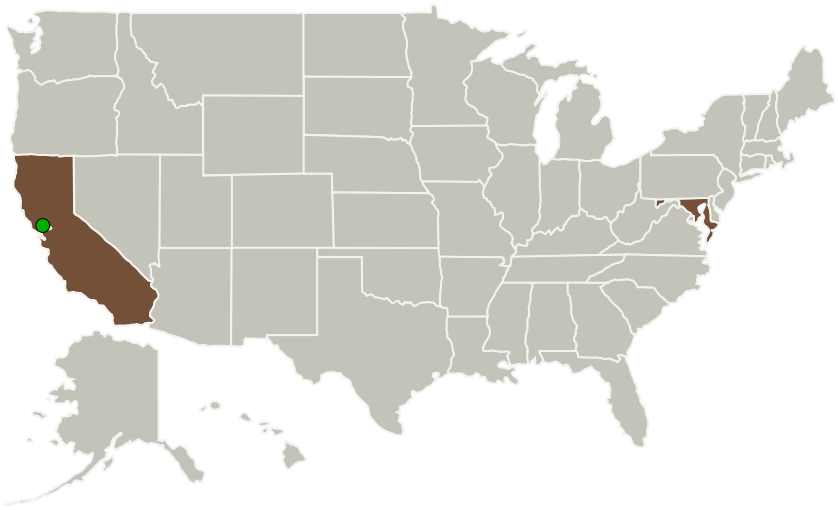
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Intelligent Automation, Inc.	Lead Organization	Industry	Rockville, Maryland
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Maryland

Project Transitions

July 2018: Project Start

February 2019: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137905)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Intelligent Automation, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

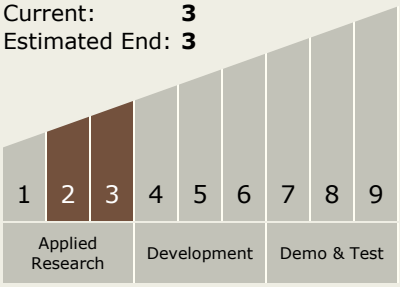
Carlos Torrez

Principal Investigator:

Sricharan Ayyalasomayajula

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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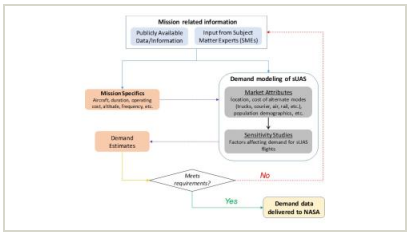
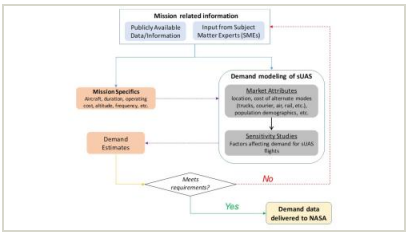
Images



Briefing Chart Image
Small UAS Demand Estimation, Phase I
(https://techport.nasa.gov/image/133518)



Final Summary Chart Image
Small UAS Demand Estimation, Phase I
(https://techport.nasa.gov/image/131895)

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.3 Aero Propulsion
    - TX01.3.1 Integrated Systems and Ancillary Technologies

Target Destination

Earth